

ABSTRACT OF THE DISCLOSURE

In-line fiber splitting in a spunbond process is achieved by differential heat shrinkage of two or more components of a plural-component fiber, such as a ribbon-shaped bicomponent fiber to produce a nonwoven fabric having superior properties.

- 5 Two polymers that shrink to substantially different degrees upon application of heat are extruded from an array of orifices 32 of a spinneret 30 as components of plural-component fibers. Ribbon-shaped fibers having alternating first and second components having a difference in heat shrinkage of at least approximately ten percent result in a high degree of rapid separation of the fiber components. The array of plural-
- 10 component fibers is drawn through an aspirator 36 and attenuated prior to being deposited on a web-forming belt 42 and conveyed to a heater 50 which heats the web to a temperature sufficient to cause differential heat shrinkage of the polymer components, thereby causing the fiber segments formed of the components to separate in less than approximately a second. After fiber separation, the web is bonded to form
- 15 the nonwoven fabric.